Unit 12
Day 4
Piecewise-Defined Functions
Section 3.5 from textbook

Graph the following piecewise function.

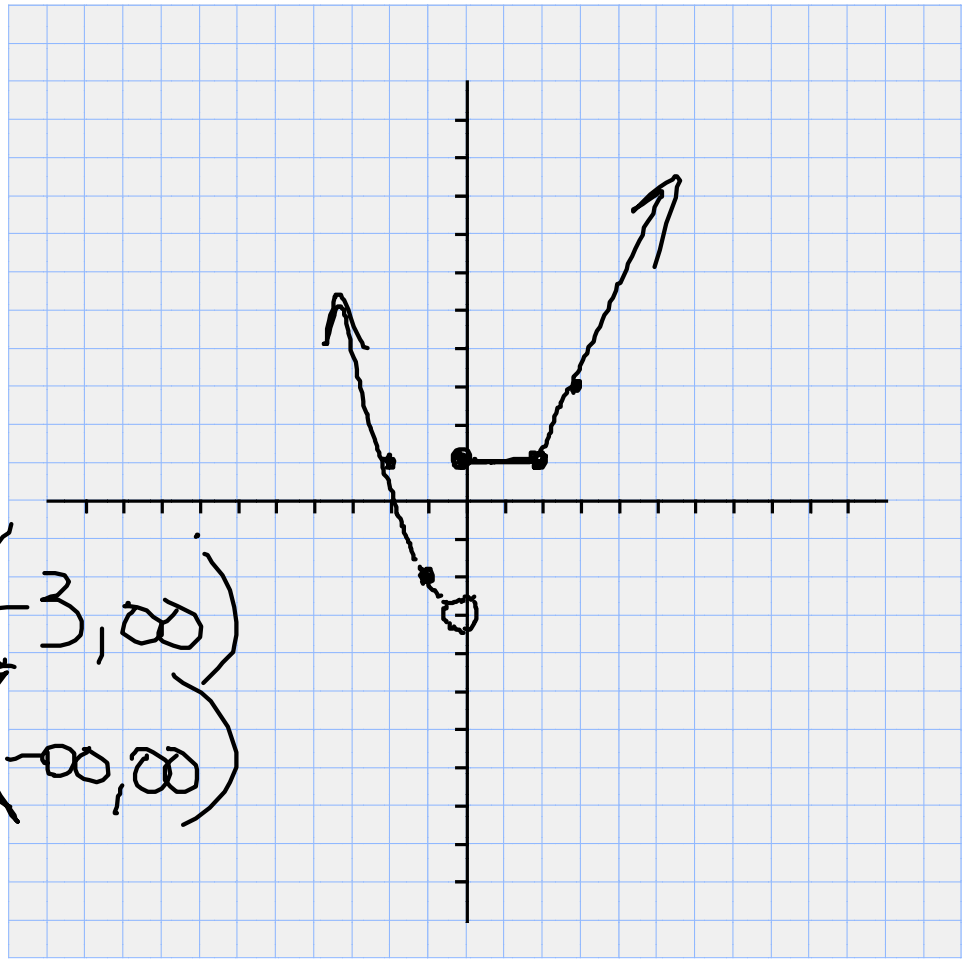
$$f(x)=\begin{cases} x^2-3, & \text{if } x<0 \\ 1 & \text{if } 0\le x\le 2 \\ 2x-3 & \text{if } x>2 \end{cases}$$

X	Y
0	-3
-1	-2
-2	1

X	Y
2	1
3	3

R: $(-3,\infty)$

D: $(-\infty,\infty)$



State the domain and range:

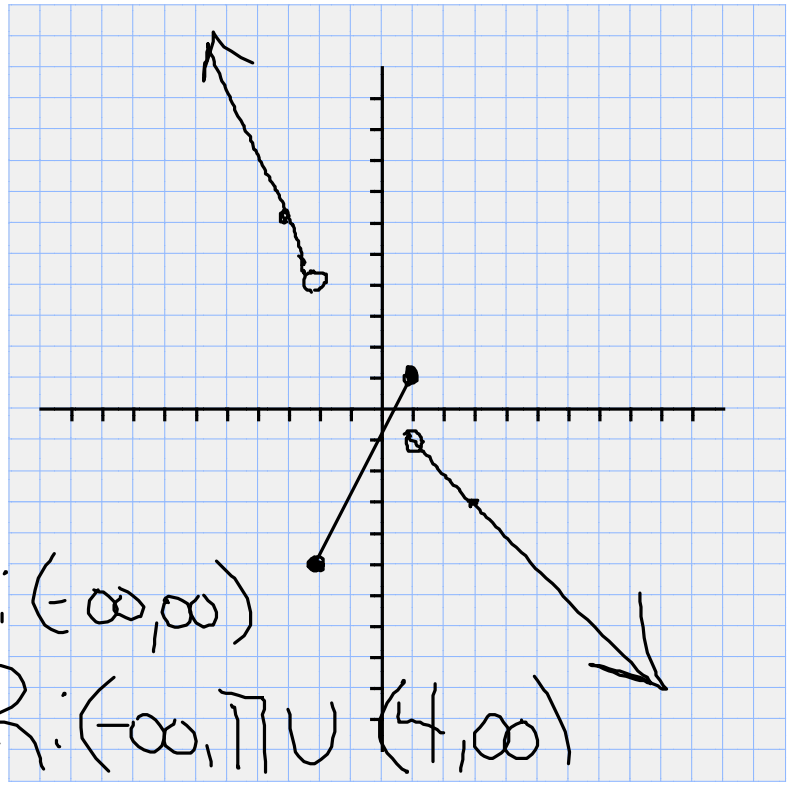
Graph the following piecewise function:

$$f(x)=\begin{cases}-2x, & \text{if } x<-2\\ 2x-1 & \text{if } -2\le x\le 1\\ -x & \text{if } x>1\end{cases}$$

x	y
-2	4
-3	6

x	y
-2	-5
1	1

x	y
1	-1
3	-3



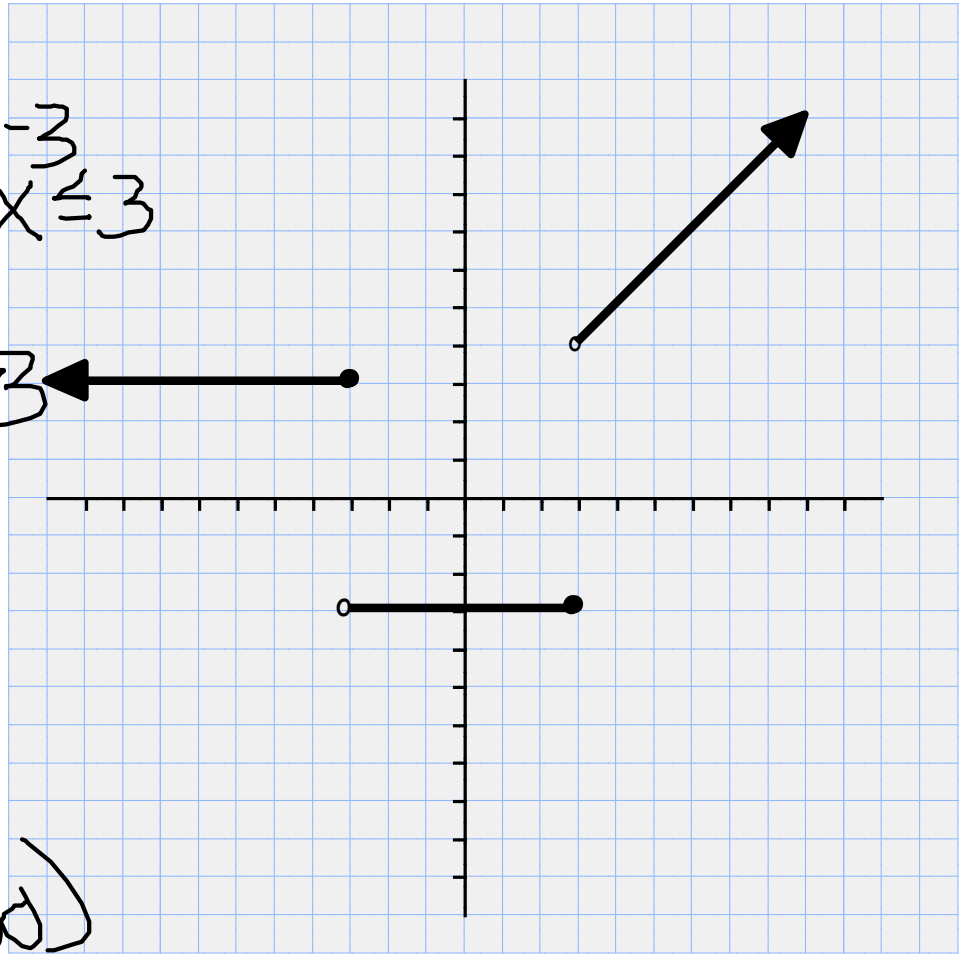
D: $(-\infty,\infty)$

R: $(-\infty,1]\cup(4,\infty)$

State the domain and range:

Give the rule for the following piecewise function. State the domain and range.

$$g(x)=\begin{cases}3 & \text{if } x\le -3\\ -3 & \text{if } -3<x\le 3\\ x+1 & \text{if } x>3\end{cases}$$



D: $(-\infty,\infty)$

R: $\{-3,3\}\cup(4,\infty)$

$$g(x)=\begin{cases}-2x, & \text{if } x<-2\\ 2x-1 & \text{if } -2\le x\le 1\\ -x & \text{if } x>1\end{cases}$$

For the above piecewise function, find

a) f(-2) $= 2(-2)-1 = -5$

b) f(0) $= 2(0)-1 = -1$

c) f(5) $= -5$

d) $\sqrt{f(-8)}$ $= \sqrt{-2(-8)} = \sqrt{16} = 4$

HOMEWORK:

p. 231: 41-54